

# PATENT SPECIFICATION

DRAWINGS ATTACHED

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831556



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## COMPLETE SPECIFICATION

### Improvements in or relating to Thermostatic Controls for Refrigerators

5 We, THE BRITISH THERMOSTAT COMPANY LIMITED, a British Co. of Teddington Works, Windmill Road, Sunbury-on-Thames, Middlesex, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates to thermostatic controls for refrigerators and has for its object to provide a thermostatic control of simple construction and low cost for refrigerators particularly of the absorption type.

15 The type of thermostatic control to which the invention relates comprises a flexible capsule, the expansion and contraction of which is arranged to operate an electric switch or gas valve, which capsule forms part of a sealed assembly comprising in addition to the flexible capsule, a capillary tube and sensitive phial charged with a thermally responsive medium. The sensitive phial is located in a fixed position on, or close to, the evaporator. Such a control normally incorporates at the thermostat end a manual range adjustment mechanism which, by varying the force opposing expansion of the capsule, alters the temperature at which the latter operates to open or close the switch or valve.

30 According to the present invention there is provided a thermostatic control of the type referred to in which means is provided for mounting the sensitive phial near the evaporator and for effecting range adjustment by altering the distance of the sensitive phial from the evaporator.

40 In carrying out the invention, use is made of a thermostat similar to the normal type described above with the difference that it does not include a range adjustment mechanism. Such a thermostat can conveniently be termed a fixed setting thermostat in that it will operate at only one "off" and one "on" temperature as pre-set by the manufacturer.

45 The phial of the thermostat is mounted on an

adjustable member adjacent to the evaporator and can be moved relative to the evaporator by the user of the refrigerator. It has been found possible to control the temperature of the evaporator over a useful temperature range by adjusting the position of the phial in this way. The method takes advantage of the temperature gradient which exists in the air space adjacent the evaporator surface. The gradient ranges from evaporator temperature at the evaporator surface outwards to a higher temperature in the cabinet air space. For the purpose of the present invention the useful temperature gradient has been found to lie within a distance of up to half an inch from the evaporator surface. Thus, although the thermostat will always operate at the pre-set "on" and "off" temperatures, the temperatures at which it will control the evaporator will be those at which the thermostat is set minus the temperature gradient between the phial and the evaporator as determined by the separating distance selected by the user.

70 There are many suitable ways in which the phial can be mounted in adjustable relationship to the evaporator to achieve the results according to the invention but a preferred way of doing so will now be described with reference to the accompanying drawing.

75 In the drawing, 1 represents part of the evaporator wall and 2 the sensitive phial with its capillary tube 3 leading to the thermostat (not shown). The phial 2 is carried in a support 4 formed at the bottom of a flexible member 5 fixed at its top edge by bolts 6 or like fastening means to the evaporator wall. An adjusting knob 7 is fixed to a screw 8 threaded into an extension of the member 5 and having its inner end abutting against the wall 1. It will be appreciated that rotation of the knob 7 will result in movement of the phial 2 towards or away from the wall of the evaporator. A bracket 9 serves to limit the outward movement of the member 5 and also carries a scale 10 to assist in the correct ad-

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justment of the position of the phial relative to the evaporator wall.

One advantage of the invention is that the manual adjustment means can be located convenient to the refrigerator user in applications where it is essential or desirable to locate the thermostat at the base of the cabinet. Principal among such applications is the absorption type refrigerator in which the heater is normally located at the rear of the base of the cabinet and in which, on the grounds of cost, it is often desirable to position the thermostat close to the heater.

#### WHAT WE CLAIM IS:—

1. A thermostatic control of the type referred to in which means is provided for mounting the sensitive phial near the evaporator and for effecting range adjustment by altering the distance of the sensitive phial from the evaporator.

2. A thermostatic control as claimed in claim 1, in which the phial is supported on part of a flexible member having another part fixed to the evaporator wall and in which a screw adjustment is provided for moving the free part of the member so as to vary the position of the phial relative to the evaporator.

3. A thermostatic control as claimed in claim 2, comprising a bracket for limiting the movement of the free part of the member and carrying a scale to facilitate in adjusting the position of the phial.

4. A thermostatic control substantially as described with reference to the accompanying drawing.

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#### PROVISIONAL SPECIFICATION

#### Improvements in or relating to Thermostatic Controls for Refrigerators

WE, THE BRITISH THERMOSTAT COMPANY LIMITED, a British Co. of Teddington Works, Windmill Road, Sunbury-on-Thames, Middlesex, do hereby declare this invention to be described in the following statement:—

This invention relates to thermostatic controls for refrigerators and has for its object to provide a thermostatic control of simple construction and low cost for refrigerators particularly of the absorption type.

The type of thermostat normally used for the control of refrigerators comprises a thermally responsive element, the expansion and contraction of which is arranged to operate an electric switch or gas valve. The thermally responsive element is usually a sealed assembly comprising a flexible capsule, capillary tube and sensitive phial charged with a thermally responsive medium. Such a thermostat incorporates a manual range adjustment mechanism which, by varying the force opposing expansion of the capsule, alters the temperature at which the element operates to open or close the switch or valve. The sensitive phial is located in a fixed position on, or close to, the evaporator.

According to the present invention, the thermostat itself is non-adjustable and the range adjustment is effected by altering the position of the sensitive phial relative to the evaporator.

In carrying out an embodiment of the invention, use is made of a thermostat similar to the normal type described above with the difference that it does not include a range adjustment mechanism. Such a thermostat can conveniently be termed a fixed setting thermostat in that it will operate at only one "off" and one "on" temperature as pre-set by the manufacturer.

The phial of the thermostat is mounted on an

adjustable member adjacent to the evaporator and can be moved, relative to the evaporator, by the user of the refrigerator. It has been found possible to control the temperature of the evaporator over a useful temperature range by adjusting the position of the phial in this way. The method takes advantage of the temperature gradient which exists in the air space adjacent the evaporator surface. The gradient ranges from evaporator temperature at the evaporator surface outwards to a higher temperature in the cabinet air space. For the purpose of the present invention the useful temperature gradient has been found to lie within a distance of up to half an inch from the evaporator surface. Thus, although the thermostat will always operate at the pre-set "on" and "off" temperatures, the temperatures at which it will control the evaporator will be those at which the thermostat is set minus the temperature gradient between the phial and the evaporator as determined by the separating distance selected by the user.

There are many suitable ways in which the phial can be mounted in adjustable relationship to the evaporator to achieve the results according to the invention.

Although so far the invention has been described in terms of the temperature gradient existing in the air space surrounding the evaporator, a similar gradient occurs in a solid conductor projecting from the evaporator surface and according to one form of the invention, an adjustment mechanism is provided to draw the phial along the surface of the projecting conductor to effect the range adjustment.

One advantage of the invention is that the manual adjustment means can be located convenient to the refrigerator user in applications

5 where it is essential or desirable to locate the thermostat at the base of the cabinet. Principal among such applications is the absorption type refrigerator in which the heater is normally located at the rear of the base of the cabinet and in which, on the grounds of cost, it is often desirable to position the thermostat close to the heater.

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831,556  
1 SHEET

COMPLETE SPECIFICATION

*This drawing is a reproduction of  
the Original on a reduced scale.*

